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Cocaine Use in Europe – A Multi-Centre Study

Methodology and Prevalence Estimates

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Key Words
Cocaine · Crack · Epidemiology

Abstract
An increase in the use of cocaine and crack in several parts of Europe has raised the question whether this trend is similar to that of the USA in the 1980s. However, research in the field of cocaine use in Europe has been only sporadic. Therefore, a European multi-centre and multi-modal project was designed to study specific aspects of cocaine and crack use in Europe, in order to develop guidelines for public health strategies. Data on prevalence rates were analysed for the general population and for specific subgroups. Despite large differences between countries in the prevalence of cocaine use in the general population, most countries show an increase in the last few years. The highest rate with a lifetime prevalence of 5.2% was found for the United Kingdom, although with a plateau effect around the year 2000. With regard to specific subgroups, three groups seem to show a higher prevalence than the general population: (1) youth, especially in the party scene; (2) socially marginalized groups, such as homeless and prostitutes or those found in open drug scenes; (3) opiate-dependent patients in maintenance treatment who additionally use cocaine. Specific strategies need to be developed to address problematic cocaine use in these subgroups.

Introduction

There has been an extensive field of research on cocaine use and dependence, which ranges from basic research to clinical and social research. There is sufficient evidence that cocaine use can be found in all social classes of society, that the social context has a significant effect on the patterns of use as well as on the risk of dependence. Cocaine dependence, although not affecting all cocaine users, is a serious threat for the mental and physical health of cocaine users. The treatment options remain limited, but research has shown some promising forms of interventions.

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Cocaine and crack use always has to be considered in light of the social context, so that generally the assessment differs for each individual country. Nonetheless, some aspects may be of importance for the European situation when looking at cocaine use in the USA. From 1972 to 1982 the lifetime prevalence of cocaine use in the general US population increased from 1.6 to 8.5% for older adults and 9.1 to 28.3% among younger adults. After reaching a peak in 1985, a decline occurred in lifetime use, though not however in cocaine dependence [1]. Crack developed in the 1980s largely in response to the absence of high-quality, inexpensive cocaine. It first appeared as a problem in 1986 in New York, Los Angeles and Miami and then quickly spread to other cities.

It remains unclear how many cocaine and crack users are able to use without serious problems or how many become dependent. Cocaine dependence disorder shows different clinical characteristics in relation to dose, administration route, and length and pattern of use. In general, drug abuse liability and intoxication intensity are directly related to the bioavailability of the substance in the central nervous system, and positively correlated with the subjective sensation of euphoria. Furthermore, the duration of the euphoric effects is inversely related to the speed of the initiation of the drug's activity [2]. Therefore, administration route is an important factor in the evolution of cocaine dependence. Abuse or dependence can take years to develop when cocaine is sniffed, while smoking and injecting the drug can lead to dependence or abuse within months or even weeks [3]. The effects of cocaine once a person is dependent are different from those experienced during occasional use. The dependent person often experiences mood swings, anxiety, irritability, aggression and paranoid ideation, lack of interest in anything not related to the acquisition and consumption of the drug, social isolation, and progressive personal and social deterioration. Decompensation of pre-existing psychiatric disorders, such as schizophrenia, is frequent, and there is an increase in frequency and intensity of symptoms in patients with anxiety disorders and depressive states [2]. Another important aspect is the fact that cocaine use is seldom isolated – the comorbidity with the use of other substances is quite high (i.e. 84% comorbidity with alcohol dependence [1]).

Until now, none of the diverse psychopharmacologic treatments tested have demonstrated assured efficacy. It is notable that distinct pharmacological therapies have been developed on the basis of the modification of cerebral dopaminergic transmission. In general, two principal strategies have been studied. Dopamine receptor antagonist agents have been used to counteract cocaine's gratifying effects, and, in an opposite manner, agents that facilitate dopaminergic transmission have been used to counteract the dopamine deficit observed during withdrawal [4, 5].

As the results for pharmacological treatment options have not been successful so far, this has increased the importance of psychosocial interventions to modify the addictive behaviour of cocaine dependent persons. The only large-scale randomised clinical trial in the field of addiction, where the effects of a psychosocial intervention have been systematically tested, can be found in the field of cocaine dependence: A large trial studied the efficacy of four different psychosocial interventions for cocaine dependent patients [6]. The four interventions were: cognitive psychotherapy, psychodynamic psychotherapy, individual counselling and group counselling. All psychosocial interventions showed a significant efficacy in the reduction of cocaine use. The two psychotherapies were more effective in retention, the two counselling methods were more effective in abstinence rates.

The social situation of cocaine and crack users in the USA is best summarized in the work by Reinarman and Levine [7]: All social classes are known to use cocaine, while it is mainly the middle and upper classes that use cocaine powder and the lower class that uses crack. Depending on the social class, in which the substance is used, a clear relationship can be found with other social contextual factors, such as violence, homelessness and unemployment. In the US, crack has also become the cocaine form mainly used by African-American and Latino minorities, while cocaine powder is used mainly by the Caucasian majority. However, this relationship is obviously tied to the economic status.

There is sufficient evidence showing that social contextual factors play an important role in the extent of problems related to cocaine use. Therefore, evidence on effects of cocaine use from the USA cannot simply be extrapolated to Europe on a one-to-one basis. The lack of research on cocaine use in Europe lead to the design of this multi-centre study, with the aim of collecting data that will help us understand European aspects of cocaine use.

Methods

The research project 'Support needs for cocaine and crack users in Europe (cocinEU)' was initiated in January 2002 and completed in December 2003. This multi-centre, multi-modal research project was aimed at defining target group specific recommendations

('guidelines') in order to ameliorate the specific care for regular cocaine and crack users. The recommendations are to include information about how addiction services in the major European capitals can meet the challenge of rising cocaine and crack consumption. The project was initially carried out by research centres in nine European cities (Barcelona, Budapest, Dublin, Hamburg, London, Rome, Stockholm, Vienna, Zurich), while a tenth research centre (Paris) joined in during the course of the project.

The investigation includes research from three different perspectives: (1) the user perspective; (2) the policy-maker perspective; (3) the research perspective. A multimodal approach was chosen (table 1).

The prevalence estimates were designed to provide a measure of cocaine use, especially the prevalence of problematic cocaine use. The most comprehensive and comparable data on substance use in different European countries is provided by the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA, www.emcdda.eu.int): The EMCDDA has established a set of five key indicators for this work. These are: prevalence and patterns of drug use among the general population (population surveys); prevalence and patterns of problem drug use (statistical prevalence/incidence estimates and surveys among drug users); drug-related infectious diseases (prevalence and incidence rates of HIV, hepatitis B and C in injecting drug users); drug-related deaths and mortality of drug users (general population mortality special registers statistics, and mortality cohort studies among drug users); demand for drug treatment (statistics from drug treatment centres on clients starting treatment). Furthermore, the EMCDDA work also targets drug trends in youth, drug-related crime, drug-related social exclusion and availability of illicit drugs.

Nonetheless, EMCDDA statistics do not necessary reflect the local realities of cocaine use in cities, where other data can be included in order to arrive at a more comprehensive picture of cocaine use. These vary from one centre to the next, including treatment data, mortality data and police data. Other centres utilised studies on special subgroups, such as homeless or socially marginalized people, pupils and students, recruited soldiers or cocaine users in recreational contexts.

Table 1. Components of the multimodal methodology

1	Literature analysis and prevalence estimates: In each location the national literature on cocaine and crack was analysed, including unpublished reports and 'grey' literature. A special focus was placed on epidemiological data, in order to come up with an estimate of cocaine use, especially the prevalence of problematic cocaine use.
2	Standardized user interviews: Problematic cocaine and crack users from three target subgroups were interviewed as to their social and health status as well as their need for support [for inclusion criteria as well as instruments used, see Prinzleve et al., this issue].
3	Qualitative user interviews: These interviews will be carried out in order to gain detailed information about consumers, especially about their problems within the addiction treatment.
4	Analysis of drug emergencies: Documentation of the drug emergency facilities in the different study locations will be analysed as to the impact of cocaine and crack consumers and what kind of somatic and psychological complications occurred.
5	Expert interviews: A systematic analysis of existing support offers for target groups will be executed in the respective study locations. A base-line of local problems as well as public health and social political strategies in dealing with cocaine and crack consumers.
6	Development of possible public health strategies: Due to this integration of different dimensions of the study the empirically founded need for support can be defined and recommendations can be elaborated. On local town conferences the results and findings of the study will be discussed in detail with representatives and people in charge from the cooperating study locations.

Results on Prevalence Estimates

The results on prevalence estimates can be divided into two categories:

Lifetime and 12-month prevalence in the general population.

Prevalence in special subgroups.

Lifetime and 12-Month Prevalence

Figures on lifetime and 12-month prevalence are in most part national figures, derived by epidemiological studies mainly through the focal points of the EMCDDA in the respective country (table 2). Specific city prevalence rates were not available in most centres except for Stockholm: About 3% each year of the 5,500 registered drug addicts from 1988 to 1991 in the Stockholm area had used cocaine and a few persons had used crack [8].

Prevalence in Special Subgroups

Published data on special subgroups using cocaine can be found according to three criteria: age, treatment status and social subgroups. With respect to age, there are several reports on cocaine use among youth samples. Different treatment samples are evaluated with respect to cocaine use. And several descriptive studies evaluate cocaine use among social subgroups such as prisoners, homeless, prostitutes, and other groups. Since these vary from one country to the next, the results are presented by country. As not all centres delivered information on prevalence among subgroups, only those with a report are presented.

Table 2. Lifetime and 12-month prevalence rates of cocaine use*

Country*	Lifetime prevalence	12-month prevalence
Germany**	1990: 18–39 years: 1.5% 1995: 18–39 years: 3.7% 2000: 18–39 years: 3.8% 2000: 18–59 years: 2.4%, crack 0.1% [12] 15–64 years: 1995: 1.9% 1997: 1.4% 2000: 2.3% 18–39 years: 2000: 3.6% 15–34 years: 1990: 1.3% 1995: 3.6% 1997: 2.2% 2000: 4.0% [46]	1990: 18–39 years: 0.4% 1995: 18–39 years: 1.6% 2000: 18–59 years: 0.9% [12] 15–64 years: 1995: 0.8% 1997: 0.6% 2000: 0.9% 18–39 years: 2000: 1.5% 15–34 years: 1990: 0.4% 1995: 1.8% 1997: 1.3% 2000: 1.9% [46]
United Kingdom	15–64 years: 1994: 2.4% 1996: 3.1% 1998: 3.8% 2000: 5.6% 2001/2: 5.2% 15–34 years: 1994: 3.4% 1996: 4.4% 1998: 5.8% 2000: 9.8% 2001/2: 8.7% [46]	15–64 years: 1994: 0.5% 1996: 0.6% 1998: 1.3% 2000: 2.0% 2001/2: 2.0% 15–34 years: 1994: 0.9% 1996: 1.3% 1998: 2.4% 2000: 4.5% 2001/2: 4.0% [46] 16–59 years: 1994: 0.5% 2000: 2% [26]
Switzerland	1992/3: 15–39 years: 2.7%, crack 0.1% 1997/8: 15–39 years: 3.3% [47, 48]	1992/3: 15–39 years: 0.44% 1997/8: 15–39 years: 0.37% [48]
Sweden	1988–2000: 15–75 years: 1–2% [49] 15–64 years: 1994: <0.5% 1996: 1.0% 1998: 1.0% 2000: 1.0% [46]	15–64 years: 1998: <0.5% 2000: 0.0% [46]
Italy	2001: 15–64 years: 1.1% 2001: 15–34 years: 1.8%	
Ireland		1998: 15–64 years: 1.3% 1998: 15–34 years: 2.6% [46]
Spain	15–65 years: 1995: 3.4% 1997: 3.2% 1999: 3.1% [45] 15–64years: 1995: 3.7% 1997: 3.3% 1999: 3.2% 2001: 4.9% 15–34 years: 1995: 5.9% 1997: 5.2% 1999: 4.8% 2001: 7.7% [46]	15–65 years: 1999: 1.5% [45] 15–64 years: 1995: 1.9% 1997: 1.6% 1999: 1.6% 2001: 2.6% 15–34 years: 1995: 3.4% 1997: 2.8% 1999: 2.7% 2001: 4.6% [46]

* No data available for Austria and Hungary.
** Data only for West Germany, cocaine use in East Germany much lower.

Germany

Three groups of cocaine users seem to be relevant in Germany [9]: party goers (mainly youths), drug users in outpatient drug treatment, and those in the open drug scene. Among 12- to 25-year-olds, the lifetime prevalence of cocaine use is relatively stable between about 3% in 1993, 2% in 1997 and 2% in 2001 [10]. Representative studies carried out in Hamburg [11] and Berlin [12] report higher lifetime-prevalence rates of up to 9.7% among 18- to 39-year-olds. Cocaine is widely used in recreational settings [13, 14]. For example, 31–36% of all party-goers from the Munich and Berlin techno scene reported the use of cocaine [15–17]. The importance of the party setting is underlined in a reanalysis of the representative study 'Drug Affinity among Young People in the Federal Republic of Germany' [10]. Within the group of regular party-goers, the 12-month prevalence of cocaine has increased from 2% in 1997 to 4% in 2001, and was four times higher than for those who were not regular party-goers with 1% [18]. In this setting, cocaine use is mainly by means of snorting, yet also through other routes of administration [19].

A second group consists of drug users in outpatient drug treatment, mostly opiate users in methadone maintenance treatment. According to the results of the German treatment documentation system for 2001, 55% of the women and 48% of men starting treatment primarily because of opiate use are also cocaine users, and 43% of both men and women are crack users, too [20, 21].

The third group of drug users with a high prevalence of cocaine is the group of IDUs belonging to the open drug scene. In this case, most studies were conducted in Frankfurt am Main and Hamburg, those German cities with large visible drug scenes. In a study of the Hamburg open drug scene conducted in 2000, 74% of 616 drug users had consumed cocaine or crack within the last 24 h [25]. Compared to the 63% of cocaine or crack users found 1 year earlier in the same population [22], this is a further increase, and almost doubled the percentage found 5 years earlier [23]. Furthermore, there is an increase in the use of crack cocaine: In 2000 22% had used crack cocaine and 58% had used cocaine powder within the last 24 h, but in 2003 71% had used crack cocaine and 29% cocaine powder [24, 25].

United Kingdom

One major finding to emerge from the British Crime Survey (BCS) has been the concentration of the use of cocaine powder among young male adults 16–29 years. Five percent of 16- to 29-year-olds reported using cocaine in 2000, a 5-fold increase on reports to the 1994 survey [26]. Other non-random studies of specific groups, such as those attending 'dance music events', report consistently high levels of lifetime use of up to 70%, and lifetime use of crack cocaine in one sample of 18% [27, 28], indicating the increasing popularity of drug use among youth cultures. In an early study, Gossop et al. [29] found crack smokers were more likely to be of Afro-Caribbean parentage, and more recent studies have reported 18% of the sample as Black origin, while approximately half the clients presenting for treatment were mixed race, Black British, Black Caribbean [30].

A further sub-population with high rates of crack and powder cocaine use exists among individuals within the criminal justice system. Finch et al. [31] reported on the prevalence of crack cocaine use in offenders engaged in a drug treatment and testing orders. Among a sample of 43, 19 (54%) had used crack cocaine in the previous 30 days, 28 (80%) had used crack cocaine in the 6 months prior to interview, of whom, 16 had used on more than one day, and 32 (61%) met the criteria for crack dependence. Similar associations of crack use and crime were found among drug users, on admission to treatment and at 4-year follow-up [32]. Another group with a high prevalence of cocaine and in particular, crack cocaine use are female sex workers, with a lifetime use of 34% and current use of 10% [33]. And in a recent study of homeless youth and drug use in the UK, lifetime prevalence of cocaine was substantially higher at 50%, and 38% for crack cocaine; last month prevalence was 15 and 18%, respectively [34].

Shifts in patterns of drug use have also been reported among intravenous drug users, with studies recognising the increasing rarity of the heroin-only user [32, 35]. The UK National Treatment Outcome Research Study (NTORS) found that many opiate users frequently used crack cocaine in addition to heroin [36]. This trend towards combination use was noted as early as 1989 when Strang et al. [37] reported increases in the prevalence of cocaine use – in particular crack – among opiate users from 13% in 1987 to 29% in 1989.

Italy

Information is available on cocaine use for two subgroups: military recruits and patients in addiction treatment. The first comes from a study carried out in 1996 amongst military recruits during medical control. The data showed that 3% of the 35,000 men (aged 18) used cocaine on a daily basis and 5% used cocaine in combination with other drugs [38]. For the second subgroup, of

the 155,096 patients in public addiction treatment centres in Italy in the year 2002, around 6% reported using cocaine as first drug of choice and 80% reported heroin as primary drug, of which 20% report cocaine use as a secondary drug [38].

Ireland

The available treatment data indicate an increase in the number of individuals presenting at services reporting the use of cocaine. The data suggest that cocaine is more likely to be a secondary drug than a primary drug among treated drug users. There has been a rise of cocaine use up to 8% of all contacts. For the year 1998, 72.5% of clients presenting with cocaine as either a primary or secondary drug of misuse were male [39].

Another subgroup is the homeless: A study of homeless drug users carried out in 1999 revealed that all reported heroin/methadone as being their primary drug, and 23% reported cocaine as being their secondary drug [40]. A study of the Health of Hostel-Dwelling Men in Dublin reported lifetime prevalence of 20% for cocaine [41]. Hannon et al.'s [42] survey of the prison populations' health, attitudes and nutrition found that 50% of the women and 47% of the men reported a lifetime prevalence of cocaine, with 24% of the men and 28% of the women reporting cocaine use three or more times.

Spain

As in other countries, there are several reports of higher cocaine use prevalence among younger groups. One study analysing substance use among military recruits found a lifetime prevalence of cocaine use of 12.4%, a 12-month prevalence of 7.9% and a 30-day prevalence of 5.4% [43]. Another study on cocaine use by secondary school students found a lifetime prevalence of 6.1%, a 12-month prevalence of 4.9% and a 30-day prevalence of 2.7%, yet significantly higher for males than for females [44]. As far as patients in addiction treatment, there has been a steady rise in the number of patients treated because of cocaine dependence and a shift in the primary substance of addiction treatment from heroin to cocaine, although heroin remains the main problem drug [45].

Discussion

Considering the lack of empirical evidence with respect to cocaine use in Europe, this research project will deliver a first broad look at cocaine use in Europe and possible consequences for public health strategies. Considering the association between socio-cultural factors and the severity of cocaine use, there is reason to believe that the diverse cultural situation in Europe will necessitate specific research on both a European, national and local level. A multi-centre study can therefore only show very general trends that need to be complemented by further specific research in order to come up with local or national strategies.

The data on lifetime and 12-month prevalence shows an increase for almost all European countries. The general increase correlates with efforts by cocaine producers and suppliers to capture new markets after the massive crackdown in the USA since the late 1980s. Nonetheless, the prevalence rates do not reach anywhere near those of the USA – the highest rate can be found in the United Kingdom with 5.6%, while the overall lifetime prevalence in the USA reached almost 18% in 1985. Of some interest is the question, why this general prevalence increase in cocaine use has not affected Sweden to the same extent. A possible explanation is the fact, that in Sweden amphetamines have played a major role compared to other European countries. Amphetamines are also stimulants, but the effects of cocaine and amphetamines are still quite different, so that the explanation seems not to be sufficient. Another interesting aspect is the fact that there is evidence of a plateau effect in the United Kingdom around the year 2000. The plateau experienced in the USA around the year 1985 coincided with a strong discussion in the media on the effects of cocaine use. A similar discussion in the media appeared in the late 1990s in Europe – should this lead to a plateau in the prevalence rates of cocaine use at least in the general population, than the cocaine 'problem' will not have been anywhere near that experienced in the USA.

With respect to the special subgroups with significantly higher prevalence rates of cocaine use, the evidence from several countries confirms that cocaine use concentrates around three subgroups: (1) youth groups, especially in a party setting; (2) as a secondary drug among opiate addicts, and (3) as a primary drug among marginalized sectors of society. Among youth groups the prevalence of cocaine use seems to be at least twice as high as in the general population. This is of importance for any prevention measures, such as those in school settings.

For opiate-dependent subjects the increasing rate of additional cocaine may reflect an increased availability of methadone maintenance treatment in European countries, so that not only patients with high compliance are included. It remains unclear whether the sedating effects of methadone may be responsible for increased use of the

stimulant substance cocaine. This may imply the necessity of diversifying maintenance treatment options through other opiates (i.e. buprenorphine, slow-release morphine, diamorphine). The third group – those in socially marginalized sectors of society – reflects an increasing problem for European societies that are dismantling the traditional welfare state. This group poses the biggest challenge for the health care systems with respect to cocaine (mainly crack) use, as there are not only insufficient treatment options, but also barriers in the access to care, that need to be overcome. Therefore, the increasing cocaine use in Europe may not pose as great a threat to the societies as it did in the USA, but certainly will pose a great challenge for the reform of the addiction treatment system in most European countries. The most critical aspect will be the prevalence of crack cocaine use, as its use is associated with the greatest difficulties for addiction services.

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